REMARKS

This is in response to the Final Action mailed June 9, 2006. Reconsideration and allowance of the subject application, as amended, are respectfully requested. Independent claim 1 has been amended for clarification purposes only. Thus, Applicant's do not relinquish any range of equivalents afforded by the claims as currently presented. Claims 14-38 have been cancelled, without prejudice. No new matter has been added to the subject application as a result of the changes made thereto.

Claims 1-3, 7-13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Potega (6,459,175). Applicants respectfully submit this rejection is in error.

On Page 3 of the Official Action, the Examiner asserts the following:

> As to claim 1, Potega discloses in figures 1-14 a power supply topology comprising; a first path configured to be coupled to a controller DC power source 264; a second path configured to be coupled to a battery 208; a third path configured to be coupled to a system load 206, wherein said first, second, and third paths are coupled to a common node 184. *Potega does not disclose a first switch coupled to said first path to allow selective coupling of said controller DC power source to said system load via said common node; and a second switch coupled to said second path to allow selective coupling of said battery to said common node, wherein when said first and second switches are closed said controllable DC power source and said rechargeable battery are in a parallel power supply mode to permit both said controllable DC power source and said rechargeable battery to supply power to said system load.*
>
> *However, Potega discloses multi-selector switch 184, where the power lines from both the controllable DC power source 264 and the battery device 208 are operating in parallel [see column 34, lines 29-32, 62-65]. Therefore the multi-selector switch 184 performs the same function as the first and the second switches of the instant application.* It would have been obvious to one of ordinary skill in the art at the time the invention was made to make separable the first and the second switches in order to

> accommodate application specifics, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. (Official Action, Page 3, emphasis added)

Thus, the Examiner appears to indicate while Potega does not disclose the particulars of the claimed paths and switches of independent claim 1, Potega does disclose the concept of using the multi-selector switch 184 to permit the battery 208 and the DC power source 264 to operate in parallel to supply power to the load.

Applicant's claim 1 requires, *inter alia*, "...wherein when said first and second switches are closed said controllable DC power source and said rechargeable battery are in a parallel power supply mode to permit both said controllable DC power source and said rechargeable battery to ***concurrently*** supply power to said system load." (Claim 1, as amended; emphasis added). The remaining claims depend from claim 1.

Support for this limitation can be found, for example, in Table 180 of Figure 1 (power supply mode 185) and the corresponding description thereof found at page 11, line 14 – page 13, line 21. Additional support for this limitation can be found at, for example, page 16, lines 1-9 and particularly line 6.

Before Applicant engages in a detailed analysis of the teachings of Potega, it is important to note that nowhere does Potega disclose or suggest parallel and ***concurrent*** operation of a battery and a DC power source to supply power to a load. Indeed, as will be detailed below, Potega *teaches away* from this concept by the very nature of switch 184.

Additionally, the Examiner points to Figures 1-14 of Potega as disclosing the multi-selector switch 184, the DC power source 264 and the battery 208. However, it is Applicant's

understanding of the Potega reference that Figures 5 and 5a and the corresponding description thereof (set forth below) provide the teachings as to the specifics of the operation of the switch 184, the battery 206 and the DC source 264 in relation to a parallel power supply mode. Thus, the following analysis is limited to the teachings of Figures 5 and 5a of Potega. However, Applicants respectfully request clarification if the Examiner disagrees with Applicant's assumptions in this regard or Applicant's understanding as to the scope and teachings of Potega.

Turning now to the teachings of Potega, as an initial matter, Potega briefly describes Figures 5 and 5a in the "Brief Description of the Drawings" section:

> FIG. 5 depicts another embodiment of a power supply according to the present invention shown as *a controllable regulator which, when in a circuit with a battery source, relies on that battery source to share the electrical load with the power supply,* ***by alternating the power source with a high-speed switch***.
>
> FIG. 5a is a simplified block diagram which *shows the relationship of the elements in FIG. 5* ***in performing load sharing with a power supply and a battery.***
>
> (Column 12, lines 24-32; emphasis added)

At Column 22, Potega sets forth an initial description of the operation of Figure 5, set out below:

> In FIG. 5, supplied device 206 has a data link to the controlling devices external to it. ***It can configure controllable switch 184 to route power from either 208 or controllable regulator 264***, or even auxiliary battery 290. The supplied device makes this determination on data available to it from both battery 208 and controllable regulator 264, via A/D converter 260 and along datalines 254, 196, 204 to supplied device 206, then back via lines 204 and 196 to configure switch 184, then further along to dataline 256 to configure (or temporarily deactivate) controllable regulator 264. *Thus, supplied device 206 polls the two power sources, battery 208 and controllable regulator 264 and determines which source*

> *is most appropriate to deliver reliable power.* (Column 22, lines 25-37; emphasis added)
>
> ...
>
> FIG. 5 details a system, whereby battery device 208 shares the powerlines to supplied device 206 with controllable power supply 264. ***Either*** *the power supply* ***or*** *the battery device can power the supplied device, based on the configuration of the controllable high-speed switch 184.* Both the controllable power supply and the controllable switch 184 are controlled by an external logic circuit and microcontroller (not shown). This model is similar to what is already an existing switching circuit in laptop computers, *which serves to keep the laptop powered by* ***either its rechargeable battery or*** *the external power adapter.* If the external power adapter is connected to its supplied device while the laptop is in use and under battery power, the switching circuit immediately goes to the external adapter as the primary source of power, and the battery is taken out of the power input circuit. If the external power adapter is disconnected from the supplied device, the battery immediately comes back on line to power the laptop again. This switching is transparent to the laptop, and not even a current or voltage ripple is detected. The circuit shown in FIG. 5 is based on the same model, except that battery device 208 can be any battery source, external or otherwise. The voltage regulator 287 is only required if an external battery source of a different voltage than that required by supplied device 206 is used. (Column 22, line 58 – Column 23, line 15; emphasis added)

Thus, it appears that Potega teaches, regarding Figure 5 and 5a, that the controllable switch 184 is configured to route power to the load from *either* the battery 208 *or* the regulator 264 (DC source), not both concurrently.

Potega continues the description of Figure 5 at Columns 33-37, excerpts therefrom are provided below.

> The device in FIG. 5 shown here relies on knowing the load being created by supplied device 206. The premise is that the supplied device 206 is in a mode where supplemental power is required. (Column 33, lines 53-56)
> ...

> Whatever the scenario, the system utilizes locally available power reserves which, since the battery device 208 has some level of available charge, has good potential as a power reserve. The embodiment of the invention shown here uses the multi-selector switch 184 to configure a circuit which detects the excessive load in the controllable regulator 264. (Column 33, line 66 – Column 34, line 5)
> ...
>
> The control of the voltage from controllable regulator 264 is important, because battery device 208 is to be brought into the power circuit as a parallel power source to the controllable regulator 264. The voltage of battery device is determined by configuring multi-selector switch 184 so that voltage sensor 272 can establish the correct voltage of the battery. A load is induced onto the battery's powerlines 200, by configuring multi-selector switch 184 so that power from battery 208 conducts along lines 200 into the switch, then power lines 194 and 198, and the pair labeled 202. Thus configured, battery 208 is directly powering supplied device 206 so that voltage sensor 282 can read the line voltage. The voltage reading is sent to the A/D converter 260 via lines 270 and 278 (switch 184 is this reconfigured), and it is then looped to the supplied device 264 either by the same path previously described, i.e., lines 254, 196 and 204, or it is sent to another port for wired or wireless transmission to the supplied device.
>
> The known battery voltage is then processed by software used by supplied device 206 and sent to controllable regulator 264, which matches battery device's 208 voltage. By matching the two voltages, both battery device 208 and controllable regulator 264 will be voltage matched. ***Actually, the voltage at the controllable regulator is always kept slightly higher than that of battery device 208. This is necessary to avoid contention, and to eliminate the need for a diode in lines 250 and 248.***
>
> The switch configuration shown here is established in multi-selector switch 184, so that the powerlines from both the controllable regulator 264 and the battery device 208 are operating in parallel. Supplied device 206 sees the voltage of whichever power source has the higher voltage, and the total wattage of both devices is roughly cumulative. ***A pair of diodes 252 are used to prevent current flow from regulator 264 into the battery, as a consequence of battery 208 operating at a voltage lower than that of controllable regulator 264.***
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> (Column 34, line 28 – Column 35, line 4; emphasis added)

Figure 5 is set out below for convenience.

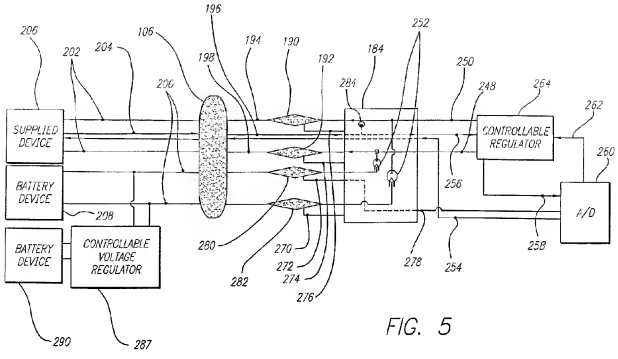

FIG. 5

Thus, while the above excerpts from Potega appear to describe a parallel power supply mode, it is Applicant's understanding that this does not teach a parallel power supply mode in which a battery and a DC source are ***concurrently coupled to a load,*** as required by claim 1 of the present application. Instead, and with reference to Figure 5, Potega specifically teaches that the voltage of the regulator 264 is ***always*** kept slightly higher than the battery 208. That being the case, and drawing the Examiner's attention to diodes 252 in switch 184 (coupled in-line between the battery 208 and regulator 264), it is respectfully submitted that, since the diodes are in forward bias away from battery 208, the battery 208 and controllable regulator 264 could not concurrently supply power to the load 206. This, according to Applicant's understanding of this reference, is simply because the cathode ends of the diodes 252 would be at a higher potential

than the anode ends, and thus, the battery 208 could not discharge to supply power if the regulator 264 is also supplying power at the same time.

Instead, it is Applicant's understanding that Potega teaches a load sharing methodology that switches between the battery 208 and the regulator 264 if the load 206 requires extra power. Potega describes this concept more definitively with reference to Figure 5a:

V. FIG. 5a

> *This block diagram is a simplified version of FIG. 5.* Normally, the switch is always contacted to the controllable power supply. ***In situations where current loads reach defined limits, the situation warrants load sharing. The high-speed switch must be controlled as to the amount of time the contactor is at the battery, and how long it is back at its original position at the power supply. A duty cycle controller, having been alerted by a current sense circuit, determines how long the switch is in either of the two positions, which dictates how much power is taken from the battery.*** Based on the load, as available from the current sense module, the wattage requirements are allocated to each of the two available sources of power. For example, if the power supply is rated at 25 watts, but the present load is 50 watts, then the duty cycle is 50%. If only 37.5 watts is needed to account for the deficit, the switch is connected to the primary power switch 66% of the time, and to the battery 34% of the time. The passive filter smoothes out the current ripples which result from the switch motion. The switch is designed to operate at a high enough frequency to reduce the size of the passive filter. (Column 37, line 46 – Column 38, line 2; emphasis added)

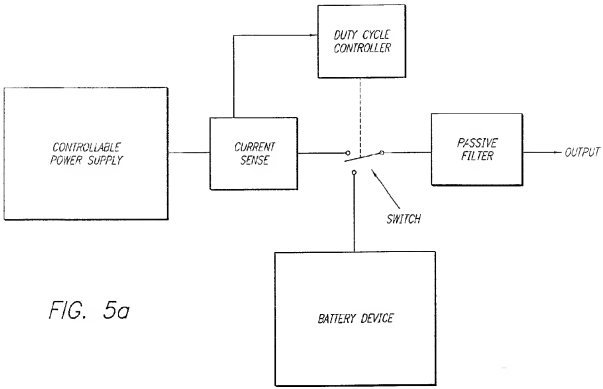

FIG. 5a

It is therefore Applicant's understanding that Potega teaches that the high speed switch is controlled to switch between the battery and the controllable power supply, depending on the load requirements. Further, it is Applicant's understanding that the "high-speed switch" of Figure 5a corresponds to switch 184 of Figure 5, and that this switch does not couple *both* the battery and the power supply ***concurrently*** to the load.

As stated above, Applicant's claim 1 requires that, when both switches are closed, a battery and a DC power source are coupled concurrently to load. As set forth above, Potega does not disclose or suggest this teaching. Indeed, Potega teaches away from this teaching by requiring that the voltage of the regulator 264 is ***always*** kept higher than battery 208, thus precluding concurrent operation of these two devices. Accordingly, it is respectfully submitted

that the Examiner's rejection of claims 1-3 and 7-13 under 35 U.S.C. 103(a) as being unpatentable over Potega is in error, and should be withdrawn.

Having dealt with all the objections raised by the Examiner, it is respectfully submitted that the present application, as amended, is in condition for allowance. Thus, early allowance is earnestly solicited.

If the Examiner desires personal contact for further disposition of this case, the Examiner is invited to call the undersigned Attorney at 603.668.6560.

In the event there are any fees due, please charge them to our Deposit Account No. 50-2121.

Respectfully submitted,

/Edmund P. Pfleger/

Edmund P. Pfleger
Attorney for Applicant
Registration No. 41,252
Grossman, Tucker, Perreault & Pfleger, PLLC
55 South Commercial Street
Manchester, NH 03101
Ph: 603-668-6560
Fax: 603-668-2970